



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/880,134	06/14/2001	Hisayuki Yamagata	SON-2126	5726
23353	7590	04/08/2004	EXAMINER	
RADER FISHMAN & GRAUER PLLC LION BUILDING 1233 20TH STREET N.W., SUITE 501 WASHINGTON, DC 20036			ROSARIO-VASQUEZ, DENNIS	
			ART UNIT	PAPER NUMBER
			2621	7
DATE MAILED: 04/08/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/880,134

Applicant(s)

YAMAGATA, HISAYUKI

Examiner

Dennis Rosario-Vasquez

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE Three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on June 14, 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on June 14, 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Response to Amendment*

2. The pre-amendment has been received on January 23, 2002 and entered.

### *Specification*

The disclosure is objected to because of the following informalities:

Page 10, line 5: "of misalignment." should be changed to "of misalignment."

Appropriate correction is required.

### *Claim Objections*

3. The following quotations of 37 CFR § 1.75(a) is the basis of objection:  
  
(a) The specification must conclude with a claim particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention or discovery.
4. Claim 2 is objected to under 37 CFR § 1.75(a) as failing to particularly point out and distinctly claim the subject matter which the applicant regards as his invention or discovery.

Claim 2, line 4 has the phrase "determining brightness value". The phrase does not make the respective claim clearly understood. The above phrase can make the respective claim interpreted as **determining a brightness value** or **determining multiple brightness values**. As a result of multiple interpretations of claim 2, claim 2 will be interpreted as "determining a brightness value" instead of "determining brightness value" for the office action.

Claim 2, lines 8,9 has the phrase "a means for accumulating a difference in brightness value adjacent portions of said [region]..." which does not make the respective claim clearly understood. As a result the of phrase will be interpreted as "a means for accumulating a difference in brightness value of adjacent portions of said [region]..." for the office action.

Claim 2, line 9 has the phrase "said region" which will be interpreted as "said region in".

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1,10,11, 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated Murakami (US Patent 6,359,650 B1)).

Regarding claim 1, Murakami, discloses a method of detecting tilt angle (fig. 1, label "f") of an optical axis of a camera (fig. 3A, line depicted from a point "P2" to point "P2'") shooting an image display surface (fig. 3A, label "OBJECT PLANE")), in relation to a vertical line (The "FOCAL PLANE" of figure 3A is a vertical line that aligns with the "OBJECT PLANE" of fig. 3B.) of said image display surface, said means comprising:

a means for detecting a localized focus degree (fig. 1, label "a") in a plurality of regions (Fig. 5 has is an image display surface or a plane of figure 3A and 3B that is divided into 9 rectangles) within said image display surface; and

a means for determining a tilt angle (fig. 1, label "f") according to a value of deviation of said localized focus degree of said plurality of regions (Murakami states," As shown in FIG. 3B, the electronic camera main body including the lens and the CCD can be tilted so that a portion, where the point P1 on the object is present, above the optical axis, i.e., a portion of the area in the front focus state is moved toward the nearest side, and a portion, where the point P3 on the object, below the optical axis, i.e., a portion of the area in the rear focus state is moved toward the infinity side col. 6, lines 41-48." Therefore each portion P1 and P2 of the object has a deviation of focus with respect to portion P2. )

Claim 10 is similar to claim 1 except for requiring an apparatus that is disclosed by Murakami in figure 2.

Regarding claim 11, Murakami discloses an image measurement apparatus comprising:

a camera (fig. 10) shooting an image display surface for performing measurement of said image display surface;

a control mechanism (fig. 10, num 106:"TILT CORRECTION INFORMATION GENERATION CIRCUIT") for controlling a tilt angle of said camera, in relation to said image display surface; and

a detecting means (Fig. 10, num. 105:"AUTO FOCUS ADJUSTMENT CIRCUIT") for detecting tilt angle of an optical axis (Murakami states," The auto focus adjustment circuit detects a change in focusing state of each area by...displacing the lens by a predetermined small distance along the optical axis, thus detecting the in-focus, front focus, and rear focus areas (col. 9, lines 8-12) ."; wherein

said control mechanism receives a value of deviation of focus value detected by said device for detecting tilt angle of optical axis as an input (The output of num. 105 is used as an input to num. 106 and col. 9, lines 13-17), and controls tilt angle of said camera.

Claim 13 is similar to and addressed in claim 1.

Claim 14 is similar to and addressed in claims 11 and 13.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-9 and 12, are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami (US Patent 6,359,650 B1) and in view of Hamamura et al. (US Patent 5,815,748).

Regarding claim 2, Murakami does not teach the elements of claim 2, but does teach detecting a brightness value at col. 5, lines 14-24.

However, Hamamura et al., in the field of endeavor of focusing of a camera, does teach determining a brightness value of an image from one end to another end of said region along one direction, wherein said means for determining brightness value covers a whole region in a direction perpendicular to said one direction (Hamamura et al. states," the focus condition is detected by the well-known contrast detection method. In this method, over the entire area of an image to be shot or in a particular partial area thereof, brightness is detected spot by spot (col. 13, lines 20-25).” Note that figure 2 has a perpendicular sensor array that detects brightness);

a means for accumulating a difference in brightness value adjacent portions of said region in said one direction only for an amount exceeding a fixed value, wherein said means for accumulating performs accumulation throughout said region (Hamamura et al. accumulates or “obtains the sum total of the absolute values of those differences as the contrast value.” for the whole image (col. 14, lines 23-28).); and

a means for dividing said accumulated difference in brightness value by a value of area of said region (Hamamura divides the obtained differences by a contrast value at col. 19, lines 5,6.).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Murakami 's “AUTO FOCUS ADJUSTMENT UNIT” of figure 1 with the teachings of Hamamura et al.'s detection of contrast using brightness values, because Hamamura et al.'s contrast detection is well-known method for focusing at col. 13, lines 20,21.

Regarding claim 3, Murakami teaches the method of detecting tilt angle of an optical axis according to Claim 2, wherein said plural regions to detect focus value in said one direction are disposed along one direction (In fig. 5, labels P1, P2, and P3 are points for corresponding regions disposed along one direction); and

said tilt angle in said one direction is detected by a value of deviation of focus values in said plural regions (This element of claim 3 was discussed in claim 1).

Regarding claim 4, Murakami teaches the method of detecting tilt angle of optical axis according to Claim 2, wherein

said plural regions to detect focus value in said one direction are disposed along one line (Murakami: fig. 5, labels P1, P2, and P3);

said plural regions to detect focus value in an perpendicular direction to said one direction are disposed along said perpendicular direction (Figure 5 has two directions that are perpendicular to the one direction that consists of the points P1, P2, and P3. The first direction, a horizontal line of two circles and a "X" labeled P1, consists of three upper regions or three upper rectangles that are perpendicular to the direction of numerals P1, P2 and P3, and figure 5 has another lower region of a horizontal line of consisting of two circles and a "X" labeled P3, that is perpendicular to the one direction of P1, P2, and P3.)



said tilt angle in said one direction is determined by a deviation in focus value in said plural regions disposed along said one direction (Figure 5 has arrow indicators, top left and top right arrows, that indicate a degree of focus value for corresponding regions, A1 and A2, of figure 7 for the "front focus state" of the point P1, which is a portion of the one direction, within the object plane as shown in figure 3 at col. 7, lines 5-12 );

said tilt angle in said perpendicular direction to said one direction is detected by deviation of focus value in said plural regions disposed along said perpendicular direction to said one direction (The perpendicular direction shown in figure 5, num. P1, P2, and P3 are at different focusing states, fig. 3A, which can be equivalent based on the adjustment of the lens as shown in figures 3A and 3B to align the focal plane and object plane of figure 3A so that both planes are coincident as shown in figure 3B. Note that the above one direction and perpendicular direction are used together, not individually, to determine tilt.); and

said detection of tilt angle in said one direction and in said perpendicular direction is performed simultaneously (The upper rectangles, which contain a region, P1, of the one direction and one of the two perpendicular regions are used to adjust the tilt in relation to point P1, which is a portion of the one direction, as discussed in col. 7, lines 5-12.).

Regarding claim 6, Murakami teaches the method of detecting tilt angle of optical axis according to Claim 1, wherein a region of detection of localized focus degree within said image display surface is set to a central portion of said image display surface (Figure 5, label P2 is a central portion of the image display surface.).

Regarding claim 12, Murakami discloses the image measurement apparatus according to Claim 10, wherein said detecting means further comprises:

a first disposing means (Figure 1, label "c": "AUTO FOCUS ADJUSTMENT UNIT" is a means that provides an image to be divided into focus regions at col. 2, lines 19-22) for disposing plural regions of detection of focus value in one direction of said image display surface along said one direction (This element of claim 12 was addressed in claim 4) ;

a second disposing means (Figure 1, label "c": "AUTO FOCUS ADJUSTMENT UNIT" is a means that provides an image to be divided into focus regions at col. 2, lines 19-22) for disposing plural regions of detection of focus value in a perpendicular direction to said one direction along said perpendicular direction (This element of claim 12 was addressed in claim 4);

a detecting means for detecting said tilt angle (Fig.1, label "f": "TILT CORRECTION INFORMATION GENERATION UNIT" and label "d": "DISPLAY CONTROL UNIT") in said one direction using values of deviation of focus value in said plural regions disposed along said one direction (This element of claim 12 was addressed in claim 4); and

a detecting means for detecting said tilt angle (The combination of fig.1, label "f": "TILTCORRECTION INFORMATION GENERATION UNIT" and label "d": "DISPLAY CONTROL UNIT" allows a user to determine the tilt as shown by the arrow indicators of figure 5.) in said perpendicular direction to said one direction using values of deviation of focus value in said plural regions disposed along said perpendicular direction to said

one direction (This element of claim 12 was addressed in claim 4); wherein  
said detecting of tilt angles for different directions performed in parallel (This  
element of claim 12 was addressed in claim 4).

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to  
applicant's disclosure.

Aoki et al. (US Patent 5,696,550 A) is pertinent as teaching a method of  
determining the maximum brightness (fig. 5a) of an object using specific patterns as  
shown in figures 3 and 4.

Kubo (US Patent 5,404,163 A) is pertinent as teaching a method of using  
brightness position of a pixel for focusing at figure 8.

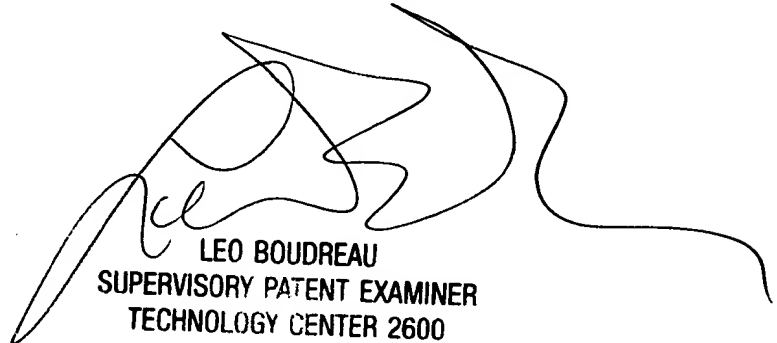
Griffith (US Patent 5,319,550 A) is pertinent as teaching a method of finding the  
centers of marks using a differential in the x and y directions at col. 6, lines 47-64.

10. Any inquiry concerning this communication or earlier communications from the  
examiner should be directed to Dennis Rosario-Vasquez whose telephone number is  
703-305-5431. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's  
supervisor, Leo Boudreau can be reached on 703-305-4706. The fax phone number for  
the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DRV  
Dennis Rosario-Vasquez  
Unit 2621



LEO BOUDREAU  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600